



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

45

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/786,759	02/24/2004	Amir Abolfathi	AT-000220	2843
24710	7590	11/12/2004	EXAMINER	
ALIGN TECHNOLOGY, INC. ATTENTION: BAO Q. TRAN 881 MARTIN AVENUE SANTA CLARA, CA 95050			BUMGARNER, MELBA N	
			ART UNIT	PAPER NUMBER
			3732	

DATE MAILED: 11/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/786,759	Applicant(s) ABOLFATHI ET AL.	
	Examiner Melba Bumgarner	Art Unit 3732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2/24/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-3, 7, 9-13, and 16-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Truax et al. (5,242,304). Truax et al. disclose a method for making an arc expander comprising scanning the patient's dentition (column 5 line 44), fabricating an appliance 38 adapted to be positioned between posterior teeth and a palatal arch, the appliance having first and second movable portions 58,60, providing an expander between the first and second portions 48 (figure 6). The method comprises adjusting the expander to vary the spacing between the portions. The expander comprises one or more screws 52. The scanning comprises intra-oral scanning. The scanning captures the patient's dentition and palatal arch. The method comprises adjusting the expander on a periodic basis. Truax et al disclose a dental appliance comprising a shell including at least one layer of a polymeric material (column 6 line 41) and having a cavity which fits closely over one or more posterior teeth 43, the shell having first and second moveable portions 58,60, and an expander 48 positioned between the first and second portions. Patentable weight is not given to the process and the intermediate products used in the process by which the

Art Unit: 3732

dental appliance is made, because a product claim is properly met if the final product is shown regardless of the process used.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 4 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Truax et al. in view of Williams (5,769,631). Truax et al. disclose a method and dental appliance that shows the limitations as described above; however, they do not show expander comprising springs. Williams teaches a dental appliance having an expander comprising one or more springs 138. It would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute the expander of Truax et al. with the spring of Williams as Truax et al. shows that a variety of expanders or other adjustment mechanisms may be incorporated into the dental appliance (column 7 line 63). Furthermore, the specification also states that the expander may be any adjustable device that increases or decreases the separation of the portion.

5. Claims 5 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Truax et al. in view of Tepper (5,376,001). Truax et al. disclose a method and dental appliance that shows the limitations as described above; however, they do not show expander comprising nitinol. Tepper teaches a dental appliance having an expander comprising nitinol (column 6 line 17). It would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute the expander of Truax et al. with the nitinol of Tepper as Truax et al. shows

Art Unit: 3732

that a variety of expanders or other adjustment mechanisms may be incorporated into the dental appliance (column 7 line 63). Furthermore, the specification also states that the expander may be any adjustable device that increases or decreases the separation of the portion.

6. Claims 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Truax et al. in view of Schulman et al. (6,808,659). Truax et al. disclose a method and dental appliance that shows the limitations as described above; however, they do not show the appliance (column 3 line 28) fabricated using stereolithography, fused deposition modeling, 3-D printing or selective laser sintering. Schulman et al. teach a method comprising the appliance fabricated using stereolithography, fused deposition modeling, 3-D printing or selective laser sintering. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Truax et al. with the fabrication step of Schulman et al. in order to produce an appliance that is homogeneous and has high strength and reliability in view of Schulman et al. Schulman et al. show the scanning comprising taking an impression of the patient's teeth, placing the impression in a scanner and generating a 3-D model of the impression (column 10 line 56).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. DeLuke (2003/0049581) is cited to show the state of the art with respect to a dental appliance.

8. Any inquiry concerning this communication from the examiner should be directed to Melba Bumgarner whose telephone number is 571-272-4709. The examiner can normally be reached on Mon-Fri.

Art Unit: 3732

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin Shaver can be reached at 571-272-4720. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in cursive script, reading "Melba Bumgarner".

Melba Bumgarner
Patent Examiner